

#### Prof Jane Walsh University of Galway



OLLSCOIL NA GAILLIMHE UNIVERSITY OF GALWAY Psychology, Ethics and the Digitalisation of Healthy Ageing



# Who am I?

- Professor of Psychology
- Director mHealth Research Group
- Funded research €30 million+
- Research on Person-centred design in Digital Health









# We are living in the age of a Digital Revolution!

**FIVE BILLION** people globally use the Internet

Although Covid-19 accelerated adoption of digital technologies, healthcare sector **lags behind** 

Technology has the capacity to **empower people** to self-manage their health when used effectively

![](_page_3_Picture_4.jpeg)

![](_page_4_Picture_0.jpeg)

![](_page_4_Picture_1.jpeg)

## Industry is blazing a trail

![](_page_4_Picture_3.jpeg)

![](_page_5_Picture_0.jpeg)

# Key trends in technology and health?

#### Wearable devices

![](_page_6_Figure_1.jpeg)

## **Big Data in Healthcare**

![](_page_7_Picture_1.jpeg)

### **Artificial Intelligence**

![](_page_8_Picture_1.jpeg)

#### **Social Robots**

![](_page_9_Picture_1.jpeg)

## **Virtual Reality**

![](_page_10_Picture_1.jpeg)

### **Virtual Humans**

![](_page_11_Picture_1.jpeg)

![](_page_12_Picture_0.jpeg)

## However

There has been a growing sense of public distrust around data privacy and lack of regulation

## Patients' concerns Will technology replace my doctor?

![](_page_13_Picture_1.jpeg)

## Healthcare workers concerns Will I be out of a job?

28% of a nurse's time is
wasted on low-skilled tasks

More time to engage in skilled complex work of treating patients

Robots cannot get COVID-19!

![](_page_14_Picture_4.jpeg)

![](_page_15_Picture_0.jpeg)

"The vision of the global strategy is to improve health for everyone, everywhere by accelerating the development and adoption of appropriate, accessible...**person-centric digital health solutions**.... to promote health and wellbeing"

Digital Health Strategy (2020-25)

# Safe and effective digital transformation of healthcare

![](_page_16_Figure_1.jpeg)

#### **Requires:**

- multidisciplinary approach
- meaningful engagement with stakeholders
- Psychological expertise

## Psychology and Ethics of Health Technology

5.42

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- Acceptability
- Engagement
- Co-Design
- Efficacy
- BEHAVIOUR CHANGE

# BECAUSE People are complicated!

![](_page_18_Picture_1.jpeg)

![](_page_19_Picture_0.jpeg)

### Understanding technology and behaviour

"There comes a point where we need to stop just pulling people out of the river. Some of us need to go upstream and find out why they are falling in"

Desmond Tutu

#### POLICY NEWS

# WHO Creates mHealth Adoption Research Standards Guide

This 16-step guideline created by the World Health Organization will ideally help create higher quality and more transparent mHealth adoption research.

![](_page_20_Picture_3.jpeg)

- Stakeholder involvement
- Context

![](_page_20_Picture_6.jpeg)

# Must take peoples' views into account

# "If you miss the first buttonhole, you will not succeed in buttoning up your coat."

- Johann von Goethe

#### **Issues with technology for patients?**

![](_page_22_Figure_1.jpeg)

#### **Personalisation for cancer survivors**

![](_page_23_Picture_1.jpeg)

Examining the Impact of an mHealth Behavior Change Intervention With a Brief In-Person Component for Cancer Survivors With Overweight or Obesity: Randomized Controlled Trial

Jane C Walsh <sup>1</sup> <sup>(D)</sup>; Janice Richmond <sup>2</sup> <sup>(D)</sup>; Jenny Mc Sharry <sup>1</sup> <sup>(D)</sup>; AnnMarie Groarke <sup>1</sup> <sup>(D)</sup>; Liam Glynn <sup>3</sup> <sup>(D)</sup>; Mary Grace Kelly <sup>2</sup> <sup>(D)</sup>; Owen Harney <sup>1</sup> <sup>(D)</sup>; Jenny M Groarke <sup>4</sup> <sup>(D)</sup>

![](_page_23_Picture_4.jpeg)

# The Moving On Programme

# Lifestyle information & education

• 4 hour session with physio, dietician & psychologist

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**Personalised goal setting** 

Fitbit and text messages

**BCTs used:** 

- 1. Goal setting
- **2. graded tasks**
- 3. Self-monitoring,
- 4. Monitoring by others,
- 5. Feedback on behavior,
- 6. Review behavior goal(s)

#### Aim: To increase physical activity behavior in cancer survivors

## **Personalised** goals

Baseline step count (+10%)

![](_page_25_Picture_3.jpeg)

![](_page_25_Picture_4.jpeg)

![](_page_25_Figure_5.jpeg)

![](_page_25_Picture_6.jpeg)

#### **Control group**

Standard care/advice

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![](_page_25_Picture_10.jpeg)

# **Important ethical issues**

• Digital literacy

 Autonomy and Independence

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## What did patients think?

- High satisfaction
- Found technology useful
- Personalisation worked

#### What did we find?

- Reduction in BMI
- Reduction in waist circumference
- Increase in physical activity

![](_page_27_Picture_8.jpeg)

#### Can a humanoid robot improve patient knowledge?

![](_page_28_Picture_1.jpeg)

#### **Answer: YES!**

## Patients liked DAVE ...

![](_page_29_Picture_1.jpeg)

Patients' perspectives were key

Multidisciplinary research team

#### Can a humanoid robot change BEHAVIOUR?

![](_page_30_Picture_1.jpeg)

![](_page_30_Picture_2.jpeg)

Infection Prevention in Practice Volume 4, Issue 1, March 2022, 100188

![](_page_30_Picture_4.jpeg)

Short Report

Is it feasible to use a humanoid robot to promote hand hygiene adherence in a hospital setting?

H. Worlikar <sup>a, b</sup>, V. Vyas Vadhiraj <sup>a, b</sup>, Aoife Murray <sup>b</sup>, J. O'Connell <sup>a, b</sup>, C. Connolly <sup>c, d</sup>, J.C. Walsh <sup>d, e</sup>, D.T. O'Keeffe <sup>a, b, d</sup> ペ 凶

#### **Answer: YES!**

![](_page_31_Picture_0.jpeg)

![](_page_31_Picture_1.jpeg)

The pier on Clare Island. Photo: Christian McLeod/Failte Ireland

# Mayo island to become a virtual health beacon for the nation

## Clare Island Home Health Project

- 140 inhabitants, no WIFI
- Older population
- Target group hypertension/diabetes
- 5G, wearables, Remote monitoring
- AI-assisted decision-making

#### Clare Island site visit

![](_page_32_Picture_1.jpeg)

![](_page_33_Picture_0.jpeg)

#### Public and Patient Involvement (PPI)

'Nothing about us without us'

#### Remote monitoring and consultation with doctors

![](_page_34_Picture_1.jpeg)

#### Promoting Equity and Accessibility to technology

### **Ethical Issues**

Health Data Monitoring: can improve care but raises concerns about *consent* 

Technology can combat *social isolation* among older adults, but can contribute to *loneliness* 

Ensure technology fosters *genuine connections and relationships.* 

![](_page_35_Picture_4.jpeg)

## **From Clare Island to Africa**

Treatment for malaria: from trial in Ethiopia and Madagascar to a mobiletechnology supported intervention (PvStatem)

#### AIMS

- Evaluate community *acceptability* of PvSeroTAT.
- 2. Develop mobile technologies for efficient *implementation* which interface with point-of-care diagnostic tests, guide treatment decisions, and interact with health systems.

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![](_page_37_Picture_0.jpeg)

Psychology's role

- Explore *stakeholder perspectives* and identify barriers/facilitators in use of digital tools
- Guide development of digital health tool
- Create *Digital Health Strategy* personalised support to teams implementing the intervention

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#### Ethiopia

#### Stakeholder engagement sessions

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![](_page_38_Picture_4.jpeg)

#### Madagascar

#### **Collective Intelligence**

# Develop Digital Health solutions to aid testing and treatment of Malaria

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# What have we learned?

- The **person should be at the centre** of innovation in technology
- Success can only be achieved by working together.

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![](_page_41_Picture_0.jpeg)

# THE FUTURE?

- Merging stakeholder input & big data to deliver AI-powered personalised interventions
- Adherence to regulations on data safety and privacy
- 'Person' at the centre of Ethical design

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If you want to go fast, go alone; If you want to go far, go together.

African Proverb